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SANITIZED VERSION OF WEEKLY PROGRESS REPORTS AUGUST 30-SEPTEMBER 27, 1948

(SANITIZED VERSION OF CRD DOCUMENT #s KP-5/PTS 2-5)

Compiled by
S. G. Thornton
Environmental Management Division
OAK RIDGE K-25 SITE
for the Health Studies Agreement

December 14, 1995

Oak Ridge K-25 Site
Oak Ridge, Tennessee 37831-7314
managed by
LOCKHEED MARTIN ENERGY SYSTEMS, INC.
for the U.S. DEPARTMENT OF ENERGY
under Contract DE-AC05-84OR21400

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This document consists of _ F. C. Hartman Approved for issue: _ pages No. / of 7 copies. Series A September 9, 1948 Oate of issue: 3円51下れ、2 CARBIDE AND CARBON CHEMICALS CORPORATION PROCESS DIVISION CHEMICAL OPERATIONS Teekly Progress Report for August 30, to September 6, 1948 W. C. Hartman DISTRIBUTION Process Division Central Files (Stubbs, G. E.) Plant Records Department Vault Doc. No. Attn: X H. W. Carnes Serial No. R. A. Greens 027A(13)1 File No. W. C. Hartman J. A. Marshall J. P. Murray RESTRICTED DATA M. F. Schwenn This document contains G. T. E. Sheldon 1954. Unauthorized dis to Administrative and C CAUTION information affecting the by the United States. Its ssion of the disclosure of its contents manuer to an unauthorized person is prohibited result/in severe criminal penalties under cable Federal laws."

Teekly Report Page 2

CHEMICAL ANEA

W722	anira	Plant
A 1.14	CTLE	THE

Fluorine	produced	123	pounds
Consumed	by Conversion Unit	35	pounds
Consumed	by 300 Section	63	pounds
Consumed	by 1400 Section	18	pounds

Mitrogen Plant:

	La (Gallons)	28 (Cubic Feet)	G-74 Pipeline (Cubic Feet)	G-74 Cylinders (Cubic Feet)
Process K-1401	1891 724	175,863 67,332	301,970 36,270	
Laboratories Evaporation K-1300 Area	954 554	88 ,722 51 , 564	100	
Cylinder Stores 7-12			700	14,920 14,675
•	**************************************			
Totals	4123	383,481	338,340	29,595
Oxide Conversion	Unit:			
	Oxide ch TF6 produ Ash produ	uced uced	47,496 grams 13,855 grams 10,629 grams	
	Fluorina	used	15,855 grams	

Decontamination:

A total of 51 items were decontaminated during the past week. Six (6), Size 3 converters were decontaminated, one (1) of which had to be re-run. Several design changes are being started on the converter Decontamination and Recovery Units.

Mercury Recovery Unit:

160 pounds of distilled mercury are ready to ship. Total mercury shipped to date, 16,139 pounds.

Cil Recovery Unit:

No oil recovery production.

CASCADE SERVICES DEPARTMENT

Leak Testing:

	Cells	Cell C-816 System	Misc. Equip.	AC Pumps	Leaks Found	Bldg. Lines
Vacuum Testing	•	•	•	**	-	•
Pressure Testing	3	2	-	1	2	1
CO ₂ Testing	•	•	-		-	•
C-816 Testing	•		•	-	•	-

Special Materials Handling:

			Discharged		Visi.			ntamir	
	Cells	Misc.	and/or Charged	Issued	AC Pumps	Couip.	P.G.	<u>011</u>	Alpha
C-216 Charging	9	4		-	-	-	•••		•
C-616 Charging	•	•	O Cyls.	**	•	•	** *	•	•
Carbon and Alumina Traps	•••	• .	17	•	•	•	•	•	•
C-816 Storage	- -	. •	-	9.2 lbs.		•	•	•	•
Field Decont.	•	3	. • .	•	1	8	2	4	47

General Service			Valves Buffered
	Service Calls	Valves Purged	ANTARA DULLETER
Purge & Buffer	2	10	10

Special Service or Reports

- (a) The usual decontamination, pressure testing, and C-216 charging were required for converter replacement jobs in 3 cells.
- (b) No further work done to obsolete mobile tails unit.



Raw monomer	1.543.0 pounds
Refined monomer loaded	2,416,5 pounds
Monomer recovered	1,274.0 pounds
Raw Fluorothene	958.5 pounds
Average polymerization	39.5%

The bonbs which were conditioned with C-216 have not been improved enough to warrant conditioning all of the reactor bonbs.

The new bombs have been completed by the Machine Shop and are now in service. No cores have been removed from the bombs yet, however, it is hoped that they will be cleaner and easier to remove because of the high polish on the inside of these bombs.

The special core which was made for the Fluorocarbon Section of Lao. D, had an N.S.T. of 240°C and polymerized 50% in 5 days. This core had approximately seven (7) times the normal charge of promoter.

PROCESS LABORATORY

I. Chemical Analyses:

Type Samples	Samples	<u>Determinations</u>
C-216 Conditioning C-616 Bulb Purge Gas (C-616) Purge Gas (C-216) Dew Point	34 34 12 0 64	34 10 12 0
Hoke Tube (C-616) Bomb from K-631 & K-131 (C-616) K-1301 - C-216 Generation	152 30 12	64 0 0 12
Totals	338	132

II. Eleven (11) carbon traps were scanned.

RADIATION MONITORING

- 1. Sixty six (66) Beta-Gamma surveys were made in K-1301 and K-1303.
- 2. Alpha surface reading and air-borne samples.
 - (a) Air-samples, surface and personnel readings were taken during the following seal changes and pump changes:

 K-305-1, C6-2A, K-310-2, C5-7-8-1A-2B-3B-1B-seals. K-301-2-C7-1B and K-301-5, C4-2B pump.
 - (b) Surface readings, hand counts and air-samples were taken during the following converter changes: K-306-7-Cl2, K-306-5-Cl0, and K-305-8-C2.
 - (c) Air samples and surface readings were taken in K-131 feed room.
- 3. 108 Film badges were distributed.



Feekly Report Page 5

RADIATION MONITORING - Continued

Sumiary:

71 Routine air-samples 78 Special air-samples 1,219 Surface readings 269 Hand counts and personnel readings

Three C-616 releases were monitored during the week of September 1, 1948.

A C-616 release occurred in K-131 "A" Bath at 3:55 PM, when line from feed cylinder broke. Air samples were taken approximately 6 feet from break and in center of feed room. Results were below tolerance at 5:15 PM. Surface readings were taken on baths and floor of feed room. Area was evacuated during the release.

On September 3, 1948, at 2:50 RM, a release occurred at K-1303, when two 10ⁿ lines that were removed from K-311-1, were delivered to K-1303 for decontamination. These lines contained solidified C-616, on end of which was covered with paper. This end of the line struck the fence, causing the release. Air samples were taken within the release area and surface readings taken on the truck, fence and surrounding ground. The area was evacuated during the release.

On September 5, 1948, a release occurred in K-131 on the "B" Bath. Flexible hose to cylinder broke, causing a small release. Air samples were taken at the "B" Bath and in center of feed room. Room was below tolerance in approximately 15 minutes. After the spill, surface readings were taken on bath and floor of the feed room. The area was evacuated during the release.

W. C. Hartman Chemical Operations

TCH:gb

Approved for issue: G. T. E. Sheldon
Date of issue: September 16, 1943

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CAREIDE AND CARBON CHEMICALS CORPORATION

PROCESS DIVISION

CHESICAL OPERATIONS

Weekly Progress Report for September 6, to September 12, 1948

W. C. Hartman

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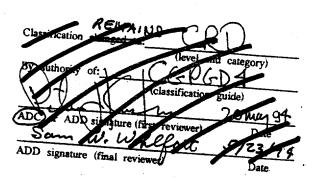
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CHEMICAL AREA

Fluorine Plant

Fluorine	produced	101 pounds
	by Conversion Unit	37 pounds
	by 300 Section	54 pounds
Consumed	by 1400 Section	10 pounds

Mitrogen Plant

·	(Gallons)	≈28 (Cubic Feet)	G=74 Pipaline (Cubic Feet)	G-74 Cylinders (Cubic Feet)
Process	2043	189,999	304,560 17,090	
R-1401 Laboratories AEC	660 922 14	61,380 85,746 1.302	113070	
Evaporation K-1405	986	1,302 91,666	250	
K-1300 Area Cylinder Stores			70	6,115
Totals	4,625	430,093	321,970	6,115
	r o			

Oxide Conversion Unit

Oxide charged	36,450 grams
TF6 produced Ash produced Fluorine used	12,641 grams 16,783 grams

Decontamination

A total of 105 items were decontaminated during the past week. Ten (10), size 3 converters were decontaminated. Design changes are being made.

Mercury Recovery Unit

376 pounds of distilled mercury are ready to ship. Total mercury shipped to date, 16,139 pounds.

Oil Recovery Unit

No oil recovery production.

CASCADE SERVICES DEPARTMENT

Leak Testing

	<u>Cells</u>	Cell C-816 System	Hisc.	Ac Pumpo	Loaks Found	Bldg. Lines
Vacuum Costing	•	•	•	•	23	. •
Pressure Cesting	1	2	•	•	3	~
CO, Testing		G	•	••	, * *	÷.

Special Materials Handling

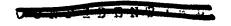
			Discharged		Visi		C	ontan	lnated
			and/or		AC	Uther		lls	SXC988
	Cells	Hisc.	Charged	Isqued	Pumps	Equip.	P.G.	Cil	Alpha
C-216 Charging	1	•	₩	٠	⇔	.	a	Ç.S	•
Carbon and									
Alumina Traps	•	.	7	•	•	•		•	•
C-816 Storage	•	•	. •	21,987	lbs.	.0	•		•
Field Decon.	0	1	•	ج,	•	4	2	4	3 9

General Service

	Service Cells	Valves Purged	Valves Buffered
C. C. Backwash	0	129	•
Purge & Buffer	0	#. •	400 er

Special Service Reports

- (a) Decontamination, pressure testing, and C-216 charging were required for converter replacement job in one cell.
- (b) A total of 21,984 gallons of C-816 was pumped from K-300-C to 8 process buildings during the past week.
- (c) No further work done to obsolete mobile tails unit.



FLUOROTHENE PLANT

Rew monomer	1,621.0 pounds
Refined mcnomer loaded	2,323.0 pounds
Monomer recovered	1,106.0 pounds
Raw Fluorothene	969.5 pounds
Average polymerization	20.6 %

- 1. The cores from the new reactor bombs were very dirty in appearance and hard to remove from the bombs. This was probably due to the absence of any reaction film on the inside of the bombs. There was an excessive amount of reaction between the promoter and the stainless steel surface of the bombs.
- 2. Work was started toward rebuilding the alcohol recovery still. It should be completed on or about September 17, 1948.

PROCESS LABORATORY

I. Chemical Analyses:

Type Samples	Samples	Determinations
C-216 Conditioning	5	5
0-616 Bulb	2	2
Purgo Gas (C-616)	4	4 · · · · · · · · · · · · · · · · · · ·
Purge Gas (C-216)	O	•
Dew Point	25	25
Hoke Tube (C-616)	. 85	Ų
Bomb from R-631 & R-131 (C-616)	26	C)
Totals	147	36

II. Scans were made on five (5) carbon traps.

III. Two (2) repair jobs were done on sampling buggies.

RADIATION MONITORING

- 1. Fifty-two (52) Beta-Gamma surveys were made in K-1303 and K-1301.
- 2. Alpha surface readings and air-borne samples:
 - (a) Routine surveys were made in the following locations:

K-306-7, P. W. - K-1303 - K-1301.

(b) Air samples, surface end personnel readings were taken during the following seal changes:

K-302-1-Cell 3, 5B seal, - K-305-3, Cell 2, - 2B seal



Feekly Report Page 5

RADIATION MONITORING - contid

- (c) Surface readings, hand counts and air-semples were taken during the following converter change, K-305-8, Cell 4.
- (d) Surface readings on the following trucks for Hr. Cgle:

AE-2552, AE-2562, AE-534 and AE-578.

3. One hundred and eight (108) film badges were distributed.

SUMMARY:

98 Routine air samples 15 Special air samples 2,535 Surface readings 60 Personnel readings and hand counts.

> W. C. Hartman Chemical Operations

FCE:gb

Approved for issue: G. T. E. Sheldon Date of issue:

September 24. 1948

This document consists of 5 pages No. 1 of 7 copies. Series A. Report No. IP-5. Part 4.

CARBIDE AND CARBON CHEMICALS CORPORATION

PROCESS DIVISION

CHEMICAL OPERATIONS

Feekly Progress Report for September 12, to September 19, 1948

w. C. Hartman

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-12 -

CHEMICAL AREA

Fluorine Plant

Pluorine	produced	137 pounds
	by Conversion Unit	31 pounds
	by 300 Section	54 pounds
Consumed	by 1400 Section	28 pounds

Nitrogen Plant

	(Gallons)	-28 (Cubic Feet)	G-74 Fipelino (Cubic Feet)	G-74 Cylinders (Cubic Feet)
Process K-1401 Laboratories AEC Evaporation K-1401 K-1300 Area Cylinder Stores	1,854 669 1,063 21 387	172,422 62,217 98,859 1,953 35,961	318,670 62,180 18,920 70	12,474
Y-J2			<u> </u>	14,675
Totals	3,994	371,412	399,840	27,149
Oxido Conversion	Unit	% 1 ×		
	Oxide charg Ash product Fluorine us	d	34,296 grams 8,149 grams 14,043 grams	

Decentamination Unit

A total of 94 items were decontaminated during the past week. Seventeen (17), size 3 converters were decontaminated.

Mercury Unit

192 pounds of distilled mercury produced this week, making a total of 568 pounds on hand.

Oil Recovery Unit

67 pounds of Light MFL on hand. 34 pounds of MFL, ready to be shipped.

CASCADE SERVICES

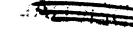
- (1) Decontamination, pressure testing and C-216 charging were required for a converter replacement job in one (1) cell.
- (2) Purging of the ebselete mobile tails unit, N-1410, was resumed with draining of oil and flushing of B-R pumps; openness checks in oil, air and P.G. lines; continous purging and heating, etc. Thus far, over 100 pounds of P.G. has been purged into carbon traps. (This does not include the contaminated oil and solid material which have also been removed.)
- Operations personnel developed a large leak in the heated enclosure. The cell connecting pipe had been removed from the cell prior to disconnecting from the unit and the strain from the weight of the pipe broke the main feed line in the unit. Cascade Services personnel assisted in purging of this unit prior to repairs. Operations personnel are conducting the necessary repairs.
- (4) The carbon and alumina storage of Vault 6A has been physically inventoried to check the bookkeeping figures on this material. The actual usage of carbon and alumina varies a great deal from estimated usage figures prepared in September, 1947; however, our supply is sufficient to delay any immediate establishment of order-points on any of this material. However, due to the increased use of soda lime traps, an order-point has been established in the Stores Department for 4- mesh soda lime.
- (5) An experimental system for decanting dry C-816 has been set up in the K-300-C unloading shed, and test runs have been started.
- (6) Cascade Services has no spare Infra-Red Analyzers on hand. All spare IRA's have been left in the eletronic shop, K-1024, and are available to Operations personnel from that location instead of being transferred through Cascade Services.

Leak Tosting

	Colls	Cell C-816 System	Hisc. Equip.	Ieaks Found	Bldg. Lines	AC Pumps
Vacuum Testing	, a	.	•	•	· 	•••
Pressure Testing	1	4	5	4	700	•
CO ₂ Testing	မ	a	, a	₩	Cia	•-

Special Materials Handling

		-	Discharged		Visi	<u>ble Co</u>	ntan.		
	Cells	Hisc.	and/or Charged	Issued	AC Pumps	Other Equip.	Spill P.G.	011	Excess Alpha
C-216 Chargin	g 2	.	. 😅	.	۵	-	3	•	•
Alumina Traps	ت	ca,	28	۵	٠	*	•	•	•
C-816 Storage	· , · . • • • .	A 450 100 100	egister Sprage 1 1	1107.5-7	bs	ca ca	49	~	•
Field Decon.	φ.	1	~3	•	٠	1	1	4	51



CASCADE SERVICES - contad

General Services

	Coolers	Valves Purged	Valves Buffered
C. C. Backwashing	•	•	•
Valve Purgo. & Buff	•	•	
DT HAD AMERICAN DE LA COM			

FLUOROTHENE PLANT

Raw Monomer	677.0 pounds
Refined Monomer loaded	2,124.5 pounds
Monomer recovered	1,030.0 pounds
Raw Fluorothene	984.75 pounds
Avorage Polymerization	40.9%

The alcohol recovery still has been rebuilt but as yet, the new 100 paig steam line has not been insulated.

Production of raw monomer has been stopped, however, it will take about two more weeks to consume the monomer which is returned to the system via stripping. The last 500 pounds of monomer will be sold to HL-40, for research and experimental purposes at Lab D.

Experimental work is being done to determine procedures for fabricating scrap material which has previously been pressed.

PROCESS LABORATORY

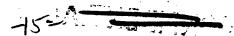
I. Chemical Analyses:

Type Samples	Samples	Determinations				
C-216 Conditioning	36	36				
C-616 Bulb	32	8				
Purge Gas (C-616)	13	13				
Purge Gas (C-216)	0	0				
Dew Point	74	74				
Hoke Tube (C-616)	137	0				
Bomb from K-631 & K-131 (C-616)	21	0				
C-216 Generation	9	9 -				
	322	140				
	نامنگار .	140				

- II. Scans were made for seventeen (17) carbon traps.
- III. Two (2) repair jobs were done on sampling buggies.

RADIATION MONITORING

- I. Eighty seven (87), Beta-Gamma surveys were made in K-306-7, P.W.
- II. Main surface specture and advolume complete



RADIATION MONITORING - cont'd

- (a) Routine surveys were made at the following locations: K-306-7, P.F., K-1303 and K-131.
- (b) Air samples, surface and personnel reading were taken during the following seal changes:
 K-310-2, Cell 3, 2B seal K-303-5, Cell 1, 3B seal K-303-1,
 Intersectional Cell, pumps removed, K-312-2, Cell 13, pump 2,
 bellows changed.
- (c) Air samples, surface readings and hand counts were taken during the converter change in K-305-8, Cell 6,
- (d) Air samples were taken September 15, 1948, in Area V, line recorder stations. (Inventory)
- (e) Surface reading were taken on tools and equipment in K-305-12 tool room.
- (f) Surface readings were taken in the maintenance shop at K-302-5.
- III. One hundred eight (108) film bedges were distributed.

SUMMARY:

119 Routine air samples 38 Special air samples 1,702 Surface readings 348 Hand counts.

> W. C. Hartman Chemical Operations

WCH:gb

Approved for issue: G. T. E. Sheldon

Date of issue:

October 1, 1948

This document consists of 5 pages No. ___ of 7 copies. Series A. Report No. RP-5 Part 5.

CARRIDE AND CARBON CHRMICALS CORPORATION

PROCESS DIVISION

CHEMICAL OPERATIONS

Veckly Progress Report for September 20, to September 27, 1943

W. C. Hartman

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CHEMICAL AREA

Fluorine Plant

Fluorine	produced	109 pounds
Consumed	by Conversion Unit	43 pounds
Consumed	by 300 Section	63 pounds
Consumed	by 1400 Section	19 pounds

Mitrogen Plant

	(Gallons)	28 (Cubic Feet)	G-74 Fipelino (Cubic Feet)	G-74 Cylindors (Gubic Feet)
Process K-1401 Laboratories Fairchild AEC	2,149 732 952 14 63	199,85 ? 68,076 88,536 1,302 5,859 23,522	332,350 56,060	
Evaporation R-1405	253	سند وري	8 , 620 90	
K-1300 Area Cylinder Stores Y-12				13,453
Totals	4,163	387,152	397,120	28,128

Oxide Conversion Unit

Oxide charged	30,678 grams
Ash produced	10,508 grams
Fluorine used	19,504 grams

Decontamination Unit

A total of 107 items were decontaminated during the past week, Hino (9), size 3 convertors were decentaminated.

Mercury Unit

Produced this week Distilled Mercury on hand Total shipped		. 360 pounds 72 pounds 784 pounds
011 Recovery Unit		
	C-2144 or hand MFL on hand T-MFL on hand	52 pounds 34 pounds 67 pounds

T-MFL on hand



RADIATION MONITORING

- 1. Sixty eight (68), Beta-Gamma surveys were made in K-1303.
 - (a) Twelve (12), Beta-Gasma surveys were made in E-303-4.
 - (b) Five (5). Beta-Gemma surveys were made in K-1410.
- 2. Alpha surface readings and air-borne samples:
 - (a) Routine surveys were made at the following locations: K-306-7, P.W. K-1303 Cubicles.
 - (b) Air samples, surface and personnel readings were taken on the following seal and pump changes:

 K-303-4, Cell 4 1B and 6B seals

 K-303-4, Cell 4 3B pump replacement.
 - (c) Air samples, surface readings and personnel checks were taken in K-310-2 & 3, pipe gallery on A normal line.
- 3. 113 film badges were distributed.

SIMMARY

87 Routine air samples 35 Special air samples 1,412 Surface readings 945 Personnel readings

PROCESS LABORATORY

I. Chemical Analyses:

Type Samples	Samples	Determinations
C-216 Conditioning C-616 Bulb Furge Gas (C-616) Furge Gas (C-216) Dew Point Hoke Tube (C-616) Bomb from K-631 & K-131 (C-616) C-216 Generation	41 2 28 4 40 83 33 24	41 2 28 4 40 0 00 24
Totals	255	139

- II. One (1) repair job was done on a sampling buggy.
- III. One (1) Dew Point meter was constructed and calibrated.
- IV. Scars were made on one hundred forty two (142), carbon traps.



FLUCROTHENE PLANT

25	0
Raw Honomer Refined Honomer loaded	1.274.0 pounds
	2.039.0 pounds
Monomer recovered Raw Fluorothene	970.25 pounds
Average polymerization	4 0.9 5
WAGAGE DOTAMOLYSTA	

The alcohol recovery still was completed and tested. The still has ample heating capacity, however, a larger converter will have to be installed in order to operate with the desired capacity.

The amount of scrap Fluorothene in stores was inventoried and a procedure was developed for refabricating this material into satisfactory sheets. There is enough Fluorothene scrap in stores to supply the normal demand for 18 months if 75% of it is repressed. A report is being prepared discussing this investigation.

CASCADE SERVICES

Leak Testing			Cell	L C-816	Bldg. Lines	_	ec.	,	AC Pump		Leaks Found		
	<u>Ce11</u>	<u>.s</u>	Sys	stem	•	, 🗔		-	-		9		
Vacuum Testing	0			0	5		1		0	•			
Pressure Testing	0	ı		O	4		8		1		17		
CO ₂ Testing	0)		ø	0		4		•		0	-	
Special Materials	Hendlin	<u>18</u>		Discha and/o			•	Visi AC	Ú	ther	nten. Spill	.s .s.	Exces:
	Cells	Mis	<u>so.</u>	Charg	ed I	esued		Pamps	E	cuio.		0.1	Alphe
C-216 Charging	1	6			• · · · · · · · · · · · · · · · · · · ·	ت				æ	9	***	Q ear
Carbon and Alumina Traps	er.	***	•	5	5	•		a		0	•	 ,	G
C-316 Storage	æ	•	2	•	a 3	39 lbs	0	•		•	ی	•	
Field Decont.	•	C)	,		Φ		1		4	1	3	27
General Services	1				Cool	ers			rged		Valv <u>Buf</u> i	res <u>Pered</u>	
C. C. Backmasnin	g			•	0)					,	20	
Valve Furg. & Bu	Ľľ.				ی	>		(0		•	28	



CASCADE SERVICES - conto

Inter-plant Flow Lines:

Work was started on September 22, 1948, to loak test the K=25 and K=27, Inter-plant flow lines. The job involved miscellaneous valve buffering and leak testing and C=216 charging.

Soap testing was done with 10 paig. of dry air in the main pipe lines. Air was admitted from K-27 by connecting the dry air header to the K-402-9 purge header, and blocking off the main K-27, G-74 header.

Time required to pressure a line from vacuum to 0 psig. or from 0 psig. to 10 psig. was approximately 1 hour for each step. Fumping time on each of the four lines varied from 2½ to 4 hours to reach a vacuum of less than 10 microns.

Only one leak was discovered on that portion of the line which is in the field and it was on the B feed. Another major leak on the B feed line was discovered in the valve seats of the K-402-9 block valve, These seats had been previously pressure leak rated with no indication of leakage.

At the close of this report period, Cascade Services is waiting for C-216 negatives on the above lines after which a final acceptance leak rate will be taken.

W. G. Hartman Chemical Operations

WCH:gb



DISTRIBUTION

- 1. K-25 Site Records (RC)
- 2. ChemRisk/Shonka Research Associates
- 3. S. G. Thornton (K-25 EMD)
- 4. DOE Public Reading Room